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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,001	02/11/2004	Nobuyuki Nagai	09792909-5806	3428

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EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

MAIL DATE	DELIVERY MODE
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07/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/777,001

Applicant(s)

NAGAI, NOBUYUKI

Examiner

Kevin M. Bernatz

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Response to Amendment

1. Preliminary amendments to claims 1 and 4 and addition of claim 7, filed on April 3, 2007 and June 6, 2007, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Priority

3. The Certified Translation of Priority Document JP 2003-042730 has been received and entered into the above identified Application.

Request for Continued Examination

4. A Request for Continued Examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 3, 2007 has been entered. An action on the RCE follows.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1 and 4 – 7 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for “a growth direction of each of said deposited evaporated magnetic films is opposite” to the previously deposited magnetic film, does not reasonably provide enablement for “a growth direction of each of said deposited evaporated magnetic films is opposite to said longitudinal direction”. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Specifically, the Examiner notes that this appears to be either a mistranslation from the original Japanese language document or an accidental oversight in the claim language, since the specification is replete with statements such as “inclination of the oblique column-like structure of the lower-layer magnetic thin film 2a is opposite to that of the upper-layer magnetic thin film 2b” (*Paragraph 0038, see also Paragraph 0062*). It is unclear what is intended by the limitation “opposite to said longitudinal direction”. Is the intent that the inclination is in a width direction (i.e. “normal to said longitudinal direction”)? The Examiner notes that there is no real “opposite to said longitudinal direction” since the tape is extending along the entire x-axis (not only the “+” x-direction. As such, the Examiner deems that the intent of the present claims was that the growth directions of each of said deposited films were opposite to the previously deposited film,

Art Unit: 1773

as described in the as-filed Specification. The Examiner notes that this is how the claims have been interpreted, even in the first action on the above identified Application. The Examiner notes that this rejection can be overcome by amending claim 1 to recite that "a growth direction of each of said deposited evaporated magnetic films is opposite to said [longitudinal direction] growth direction of the previously deposited evaporated magnetic film".

Claim Rejections - 35 USC § 103

7. Claims 1 and 4 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takai et al. (U.S. Patent No. 4,770,924) in view of Saito et al. (either JP 2002-025033 A or U.S. Patent App. No. 2002/0018918 A1). See Saito et al. ('918 A1), which is the English language equivalent of JP '033 A.

The above rejection is maintained for the reasons of record as set forth in Paragraph No. 7 of the Office Action mailed on September 7, 2006, which refers back to Paragraph No. 8 of the Office Action mailed on March 28, 2006.

Regarding the amended range of "from 10 nm to less than 50 nm", the Examiner notes that Takai et al. disclose a range starting at "about 0.05 μm " (or "about 50 nm"). Given the variability allowed by the term "about", the Examiner notes that there is still overlap between the claimed and disclosed thickness ranges.

Art Unit: 1773

8. Claims 1 and 4 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takai et al. in view of Saito et al. (either reference) as applied above, and further in view of Arisaka et al. (U.S. Patent App. No. 2003/0054202 A1) and/or Nochi et al. (JP 57-018025 A). See the provided JPO abstract translation of JP '025 A.

Regarding claims 1 and 7, Takai et al. and Saito et al. are relied upon as described above.

While Takai et al. disclose a small amount of overlap with Applicants' claimed thickness range, the Examiner acknowledges that Takai et al. fail to disclose a significant overlap, or a teaching towards the specific range used by Applicants.

However, Nochi et al. teach that it is known in the art that dual layered oblique vapor deposition films can be deposited to a thickness of 20 – 100 nm and still possess good corrosion and wear resistance (*JPO Abstract*). Furthermore, Arisaka et al. explicitly teach that when using oblique deposited magnetic media for use in a recording apparatus with a GMR type head, the desired magnetic layer thickness is 20 – 40 nm (*Paragraphs 0019 – 0020, 0040 – 0045, and example 7*). While Nochi et al. and Arisaka et al. disclose dual layered oblique films possessing growth directions the same from the lower to upper magnetic films, the Examiner notes that Takai et al. teach the functional equivalents of such growth versus dual magnetic layer growth where the growth direction from one film to another are opposite (*see Takai et al. Figures 1 - 6 and relevant disclosures thereto*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the device of Takai et al. in view of Saito et al. to

Art Unit: 1773

utilize a thickness meeting Applicants' claimed range limitations as taught by Nochi et al. and/or Arisaka et al., since such a thickness range can still possess good corrosion resistance and wear resistance, as well as being particularly suitable for use with GMR-type magnetic heads.

Claims 4 – 6 are met for the reasons of record noted above.

Response to Arguments

9. The rejection of claims 1 and 4 - 6 under 35 U.S.C § 102(e) and/or 102(f) – Motohashi (either reference)

The above noted rejection has been withdrawn because applicant(s) amendment(s) have perfected their claim to priority, thereby antedating the relied upon Motohashi references.

10. The rejection of claims 1 and 4 - 7 under 35 U.S.C § 103(a) – Takai et al. in view of various references

Applicant(s) argue(s) that Takai et al. fail to teach or render obvious the claimed thickness range. The Examiner respectfully disagrees.

The Examiner notes that Takai et al. still overlaps the end range due to the “about” language used in the Takai et al. disclosure. See also rejections in view of Arisaka et al. and/or Nochi et al., above.

Art Unit: 1773

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Several references disclose oblique deposited dual layered magnetic films of thickness values greater than 50 nm. These are: Thoma et al. (U.S. Patent No. 5,691,008) (*col. 10, lines 11 – 47*); Fujiki (U.S. Patent App. No. 2003/0152812 A1) (*examples*); Miyazaki et al. (U.S. Patent No. 5,558,945) (*Abstract*); Mizunoya et al. (U.S. Patent No. 5,731,068) (*col. 5, lines 28 – 32*); and Kobayashi et al. (U.S. Patent No. 5,453,886) (*col. 5, lines 37 – 42*).

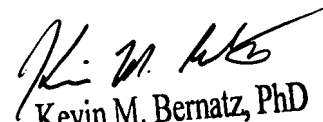
12. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The Examiner can normally be reached on M-F, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB

July 3, 2007


Kevin M. Bernatz, PhD
Primary Examiner